Dario Gjorgjevski

Curriculum vitæ

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$ FPR='744A4F0B4F1C9371'
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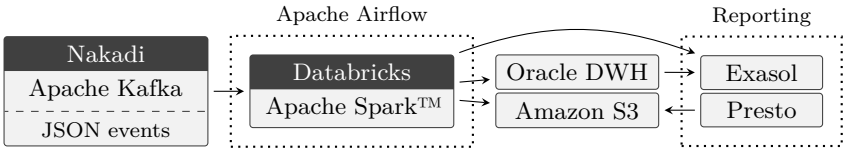
1 Experience

Data Engineer 2019-09/
Zalando SE Berlin, DE

Part of the team handling Zalando SE's *core data*: articles and sales.



Data Engineer 2018-07/2019-09
SO1 GmbH Berlin, DE

- Responsible for a Vertica DWH running on Microsoft Azure:
  - Defined *data vault* and *dimensional* models of client data.
  - Developed ETL processes to ingest data from Blob Storage, Apache Kafka®, and SFTP servers.
  - Wrote and optimized queries to monitor KPIs and to compute features for machine learning.
  - Implemented a UDx to evaluate LightGBM models directly inside the DWH.
- Translated business rules to *minimum cost maximum flow* problems, yielding 15 % greater value than the previous greedy algorithms.
- Developed a microservice for top-k nearest neighbor queries in real time by utilizing *locality-sensitive hashing* with *MinHash* signatures.

Data Scientist 2017-11/2018-06
Infinite Analytics, Inc. Skopje, MK

- Scraped clients' websites using Scrapy.
- Developed an Apache Spark™ application to compute and visualize *actionable insights* using over 2 billion facts about 50 million customers.

Research Intern 2017-07/09
EPFL, LCA2 Lausanne, CH

- Implemented software agents with `asyncio` and Mininet in T-RECS.
- Modeled smart grid power traces at a timescale of 20 ms using approaches based on wavelets and long-range dependence.
- Increased the resolution of mean-aggregated measurements using deep learning for super-resolution.

Research Intern 2016-06/09
EPFL, LASEC Lausanne, CH

Studied and improved upon the complexity of state-of-the-art solving algorithms for the *Learning With Errors* (LWE) problem.

2 Strengths

2.1 Theoretical Knowledge

Algorithms, Data Structures	Probability Theory, Statistics
Databases	Distributed Systems, Big Data Technologies
Linear Algebra	Cryptography

2.2 Hands-On Experience

Python	GNU/Linux
SQL incl. PL/SQL, Apache Spark™	R incl. `Tidyverse` and `data.table`
Redis, Apache Kafka	Apache Airflow
Computer Algebra	LaTeX incl. TikZ/PGF

- Proficient in both *scientific computing* and *software development*; and capable of writing clean, well-documented, and scalable code.
- Experience with the *agile methodology*, Git for (distributed) version control, and Jenkins for CI/CD.
- Strong academic exposure to programming language theory along with various Lisps, Haskell, and Standard ML.

3 Honors

- Graduated *summa cum laude* with a perfect GPA from the Ss. Cyril and Methodius University.
- Best student paper at the *14th International Conference on Informatics and Information Technologies* held on Apr. 7–9, 2017 in Mavrovo, Macedonia.
- Scholarships to attend the 2016 and 2017 editions of the *Summer School on Real-World Crypto and Privacy* held in Šibenik, Croatia.
- Dean's list at the Ss. Cyril and Methodius University and merit-based scholarships — awarded to the top 2.5 % students on a national level — throughout the entire duration of study.

4 Education

Computer Science & Engineering (B.Sc.) 2013-09-15/2018-01-30
Ss. Cyril and Methodius University Skopje, MK
GPA of 10.00; scale from 5 (E/F) to 10 (A).
Thesis: "Error-Correcting Codes in the Rank Metric" [2].
Publications: [1, 3].
As a senior, conducted computational exercises and examinations as well as homework assignments in:

Linear Algebra	Least squares, linear codes, and low-rank approximations in SageMath and Mathematica®.
Statistics	Data visualization, Monte Carlo methods, inference, hypothesis testing, and linear regression in R.
Databases	ER models, relational algebra, and ANSI SQL.

Presentations available at /d125q/Presentations.

Over 40 *Massive Open Online Courses* on topics related to game theory, probabilistic graphical models, Bayesian statistics, combinatorics, automata and formal languages, mathematical optimization, etc.

Certifications available at /d125q/Personal/tree/master/Certifications.

5 Theses

[2] **Dario Gjorgjevski**. "Error-Correcting Codes in the Rank Metric." With Applications to Cryptography. Bachelor's Thesis. Under sup. of Simona Samardjiska. Ss. Cyril and Methodius University, Jan. 24, 2018. eprint: http://diplomski.finki.ukim.mk/Upload/PublicFile/1814.

6 Publications

[1] **Dario Gjorgjevski**. "Combining LWE-Solving Algorithms." In: *Proceedings of the 14th International Conference on Informatics and Information Technologies* (Hotel Bistra, Mavrovo, Macedonia, Apr. 7–9, 2017). Ed. by Aleksandra Popovska–Mitrovikj, Biljana Tojtovska, and Kire Trivodaliev. 2017, pp. 165–170. ISBN: 978-608-4699-07-1. eprint: http://ciit.finki.ukim.mk/data/papers/CIIT2017.pdf.

[3] **Dario Gjorgjevski** and Dejan Gjorgjevikj. "Using Distributed Representations to Identify Genders and Age Groups of Twitter Users." In: *Proceedings of the 15th International Conference on Informatics and Information Technologies* (Hotel Bistra, Mavrovo, Macedonia, Apr. 20–22, 2018). Ed. by Nataša Ilievska and Georgina Mirčeva. 2018, pp. 2–7. ISBN: 978-608-4699-08-8. eprint: http://ciit.finki.ukim.mk/data/papers/CIIT2018.pdf.

7 Projects

C-like language ⇒ PostScript transpiler
Transpiler implemented in Flex and GNU Bison to translate a C-like language for *turtle graphics* to PostScript.

Trusted timestamping
Flask application for a simple file-sharing service which also provides *trusted timestamps* as specified in RFC3161 and implemented in OpenSSL.

AS-level robustness of the Internet over time
Simulation of random and targeted attacks against the Internet topology. Notebook and source code available at /d125q/Internet_Robustness.

Predicting readmission of diabetic patients

- Learning from imbalanced data using `mlr`.
- *Fully reproducible reporting* using LaTeX, `mlr`, and `knitr`.

Available at /d125q/Diabetic_Patients.

Survey of the MinRank problem
SageMath implementations of:

- Algorithms for solving MinRank; and a
- Zero-knowledge authentication protocol based on MinRank.

Available at /d125q/MinRank.

Checksum verification on LPC1769
C program to verify MD5 checksums of payloads stored on an LPC1769 microcontroller. Won prize for highest throughput. Source code available at /d125q/DMA_Workshop.

Substitution ciphers for Macedonian text

- Create substitution ciphers; and
- Break substitution ciphers using Markov chain Monte Carlo (MCMC) methods based on unigram and bigram frequencies.

Mathematica® notebook and corpus with Macedonian text suitable for frequency analysis available at /d125q/Macedonian_Substitution_Ciphers.